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On Reconstruction in A-Chains

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In this paper, I discuss some of the main arguments that have been made for and against A-movement reconstruction. I demonstrate that whereas recent minimalist theories of quantifier scope interactions (Hornstein 1995, 1999, Kitahara 1996) provide us with a very compelling reason to assume reconstruction with A-movement, the major arguments that have been put forth against such a process, most notably by Chomsky (1995) and Lasnik (1999), are not overwhelming. I argue that reconstruction is generally possible in A-chains, although it may be barred in certain instances by independent constraints. I adopt and further defend the proposal by Hornstein (1999) that reconstruction to intermediate positions in a chain is impossible as is reconstruction of a definite argument to a θ-position. Furthermore, I show that these constraints sufficiently obviate the major arguments against reconstruction with A-movement.

One of the most compelling arguments for A-movement reconstruction stems from recent analyses of quantifier scope interactions. Hornstein (1995, 1999) and Kitahara (1996) propose that standard scope ambiguities of the sort illustrated in (1a) can be accounted for without resorting to QR if it is assumed that the object undergoes A-movement to a position c-commanding the "base" (i.e., θ) position of the subject, as shown in (1b).

(1) a. Someone loves everyone.
b. [$_{CP}$ C [$_{TP}$ someone [T [$_{vP}$ everyone [*someone* [v [$_{VP}$ loves *everyone*]]]]]]]

Chomsky (2000, 2001), for example, argues that, in a structure like (1a), a probe *v* triggers *Agree* with a local matching DP goal in its search domain, in this case the QP *everyone*. The outcome of this operation is that the ϕ-features of the probe and the Case feature of the goal receive values, as required for convergence. I further assume that establishment of this agreement relation triggers ancillary movement of the object to the specifier of *v*, giving rise to a structure containing two "copies" of the goal, one in the original θ-position and another in the specifier of the probe, as indicated in (1b).[1] Similarly, T agrees with the DP *someone*, again giving rise to movement and multiple copies.

Exactly the same derivation takes place in transitive sentences without quantifiers (e.g., *John loves Mary*), which is the central intuition behind Hornstein/Kitahara (H/K) theory of scope, namely, that scope ambiguity is parasitic on morphologically (ϕ/Case) driven A-movement. In other words, there is no need to postulate any special, morphologically unmotivated features to induce (normally covert) movement of quantificational expressions, to the exclusion of all other nominal phrases, to "scope taking" positions.

Assuming that c-command relations at LF are mapped to scope relations in the C-I component, to yield the reading where the object is interpreted as taking scope over the subject in (1a), the system must be able to "consider" the lower copy of the subject, which is arguably c-commanded by the higher copy of the object. In other words, some sort of "reconstruction" of the subject to its θ-position is crucial for this approach to be successful.

However, Chomsky (1995) presents several empirical arguments against reconstruction in A-chains. The first is based on the impossibility of coreference, between *John* and *him*, in a sentence like (2a).

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[1] I will return below to the issue of whether movement of the object to *v*P-Spec takes place overtly or covertly. I will conclude that movement is always overt, but that movement of the object to *v*P-Spec (*object shift*) is optional whereas movement of the subject to TP-Spec is obligatory. Also, I follow Chomsky (1995, 2000, 2001) in assuming that "copies," namely, the elements that constitute chains, are more properly defined in terms of *occurrences* of α. In (1b), and throughout this paper, I indicate lower copies/occurrences (i.e., what would be consider traces in earlier theories) in italic type.

(2) a. John expected him to seem to Mary to be intelligent.
b. [$_{CP}$ C [$_{TP}$ John T [$_{vP}$ him [*John v* [expected [$_{TP}$ *him* to seem to Mary [$_{TP}$ *him* to be[$_{AP}$ *him* intelligent]]]]]]]]

Assuming (2a) has a representation something like (2b), the question Chomsky raises is why a Condition B violation cannot be avoided by "reconstruction" of the pronoun to one of the lower positions in the chain. As Lasnik (1999) (see also Hornstein 1999) points out, the strength of this argument depends on the precise formulation of Condition B, in particular the domain in which a pronoun must be free. For example, if it turns out that all of the relevant categories intervening between some copy of *John* and even the lowest copy of the pronoun in (2b) are "transparent" for binding, due perhaps to the fact that they lack full agreement and/or are not strong phases, then it may be that Condition B is violated regardless of whether the pronoun undergoes reconstruction. Chomsky seems to be implicitly assuming a version of the binding theory in Chomsky 1986, in which case the minimal *complete functional complex* (which for our purposes can be taken to equal TP) containing the pronoun always forms the domain (i.e., *governing category*) in which the pronoun must be free. If so, then only consideration of the highest copy of *him* in (2b) would give rise to a Condition B violation; allowing "reconstruction" to any of lower positions in the chain would obviate the effect, as Chomsky argues.

Although I think that Chomsky's argument based on (2) is inconclusive, and may well turn out to be irrelevant under some minimalist reinterpretation of the binding theory (and, in particular, the notion "governing category"), let's assume for the sake of discussion that it holds. Even so, as Hornstein (1999) notes, this does not necessarily lead to the conclusion that A-movement reconstruction is impossible generally, only that reconstruction of *him* is impossible in (2). Although this may sound much like the proverbial trying to have the cake and eat it too, Hornstein makes a very interesting proposal that in fact allows reconstruction of *someone* in (1), which as we have seen is necessary to obtain wide-scope reading of *everyone* under the H/K theory of scope, but disallows reconstruction of *him* in (2).

The crucial assumptions are in (3) (Hornstein 1999, p. 66).

(3) a. A definite argument must be outside the lexical shell at LF.
b. Intermediate chain links are invisible at the C-I interface.

As Hornstein notes, (3a) is basically a version of Diesing's (1992) Mapping Hypothesis. Although (3a) raises many conceptual and technical questions of its own, especially within the strict guidelines of the minimalist program, some such proposal, which rests on the foundations of a long line of research (Heim 1982, Kratzer 1989, and many others), seems to be very well motivated empirically. Without going into the details of these arguments, for reasons of space, I will simply assume here that a mapping condition of the sort in (3a) holds, and that it has the consequence of preventing reconstruction of a definite DP to a θ-position.

(3b), proposed by Chomsky (1995), also has much independent motivation. Conceptually, it is very natural in a framework like minimalism that the system deals with notions like 'maximal' and 'minimal', but basically sets aside, or ignores, intermediate projections, chain links, and so on. Regardless of whether (3b) has to be stipulated as a language-specific property or whether it follows from deeper, more general principles holding of natural systems, a question I set aside here, again something along these lines seems to be well-supported empirically. Certainly more needs to be said regarding how (3b) should ultimately be interpreted in the system (for some related discussion, see Martin and Uriagereka 1999). For the purposes of the current paper, however, it suffices to recognize that (3b) has the effect of blocking "reconstruction" to any intermediate positions in an A-chain.

Hornstein argues that the conditions in (3) conspire to prevent reconstruction of *him* in (2). Reconstruction to the lowest position of the chain in (2b), a θ-position, is blocked by (3a), since the pronoun is definite. Furthermore, reconstruction to either of the intermediate sites is blocked by (3b). However, reconstruction of *someone* to its θ-position in (1b) is not hampered by either condition; in particular, note that (3a) is silent in this case since *someone* is indefinite. My major concern in this paper is to argue that the conditions in (3) not only provide an alternative to Chomsky's Condition B argument against reconstruction in A-chains,

but they also help us overcome his second argument, which is based on scope facts.

Chomsky's other major empirical argument against A-chain reconstruction stems from consideration of scope interactions between universal quantifiers and negation. He discusses the following sentences (Chomsky 1995, p. 327):

(4) a. Everyone isn't there yet.
b. I expected everyone not to be there yet.
c. Everyone seems not to be there yet.

Chomsky claims that negation can take scope over *everyone* in (4a) and (4b), but not in (4c). Based on this observation he concludes that reconstruction does not take place in A-chains.

Hornstein (1999) denies the empirical basis of the argument. He cites the following examples, which are parallel in all relevant respects to (4a) and (4c):

(5) a. Everyone didn't leave.
b. Everyone seems not to have left.

He agrees with Chomsky that a sentence like (5a) allows negation to take scope over *everyone*, whereas this reading is absent in (5b). However, he argues that the impossibility of wide scope negation in (5b) has nothing to do with A-chain reconstruction, but with the presence of *not* as opposed to reduced *n't*. In support of this generalization, Hornstein provides the examples in (6), which, according to him, also do not allow the reading where negation has scope over *everyone*.

(6) a. John would prefer for everyone not to leave.
b. John wants very much for everyone not to leave.

Hornstein (1999, p. 65) thus concludes that "a nonreduced *neg* in an embedded clause does not take scope over an adjacent *everyone*."

According to my intuitions, however, the sentences in (6) do allow the relevant reading where negation takes wide scope; in fact, I find no significant contrast whatsoever between (6) and, say, (4a)/(5a) in this

respect. This view is basically shared by Lasnik (1999), who also disagrees with Hornstein's judgment of (6), although he reports that many of his informants find the wide scope reading of negation less readily available in examples like (6) than in examples like (4a)/(5a).

Also, although Hornstein does not discuss examples of the type in (4b), his theory would seem to predict that they too disallow the wide scope reading of negation, since *n't* does not, and cannot, appear. However, as noted above, according to Chomsky (1995, p. 327), the relevant reading seems to be available in (4b). At this point it should be noted that, although Chomsky probably intends (4b) to demonstrate the possibility of the embedded negation taking wide scope over the ECM subject, as Lasnik (1999) mentions, the verb *expect* arguably allows the type of infinitival complement witnessed in (6) (with either overt or covert *for*) in addition to an ECM/raising-to-object type analysis (see Bresnan 1972, Martin 1996). On the other hand, predicates such as *believe* or *prove* only take infinitival complements of ECM (*raising-to-object*) type. We must then consider examples like the following as well:

(7) a. I believe everyone not to have left.
b. The DA proved everyone not to be guilty.

Although it is impossible to say how Chomsky would judge (7), as compared to (4b), Lasnik (1995) reports that his informants find wide scope negation marginally possible in (7) as well as in (4b). My own judgment is similar; I find the reading in question to be available in (7), at least to some degree.

It should be noted that the crucial difference does indeed seem to be whether and how far the quantifier raises, not, say, the type of predicate involved. If the examples in (7) are made passive, so that the ECM subject raises to the subject position of the higher clause, wide scope negation becomes completely impossible, I assume for all speakers, on par with (4c)/(5b):

(8) a. Everyone is believed not to have left.
b. Every suspect was proved not to be guilty.

In sum, the complex array of data witnessed so far suggest, if anything, that we are dealing with a three-way contrast: cases where negation can take wide scope, cases where wide scope is marginal, and cases where is totally impossible. However, the data are subtle and speakers do not seem to agree on where exactly to draw the lines. One thing that does seem clear, however, is that there are speakers who allow scope interaction between the universal quantifier and negation in sentences like (6) and (4b), in which case Hornstein's suggestion about non-reduced *neg* will not suffice to override Chomsky's argument against A-chain reconstruction.

Following Hornstein, I assume that reconstruction is possible in A-chains, but that it is constrained by the conditions in (3). I argue that this assumption can account not only for the binding facts in (2), but also for the core facts about *not~every* scope interactions illustrated in (4)-(8) above. Consider first the contrast between (4a) and (4c) or (5a) and (5b). I will illustrate using Hornstein's examples in (5), somewhat more detailed representations of which are given in (9).

(9) a. [everyone didn't [*everyone* leave]]
b. [everyone seems [*everyone* not to have [*everyone* left]]]

Even assuming A-chain reconstruction is possible in principle, reconstruction of *everyone*, a definite argument, to the lowest position in (9b) will not be allowed according to (3a). Nor is reconstruction to the intermediate position possible in (9b), this time due to (3b). Thus, although I maintain Chomsky's claim that the absence of the relevant reading in examples involving raising is due to the impossibility of reconstructing the A-moved quantifier to a position in the embedded clause, on the analysis proposed here this is not because reconstruction is generally barred in A-chains but is a consequence of the special nature of the moved element in question (definite) or the type of position involved (intermediate).

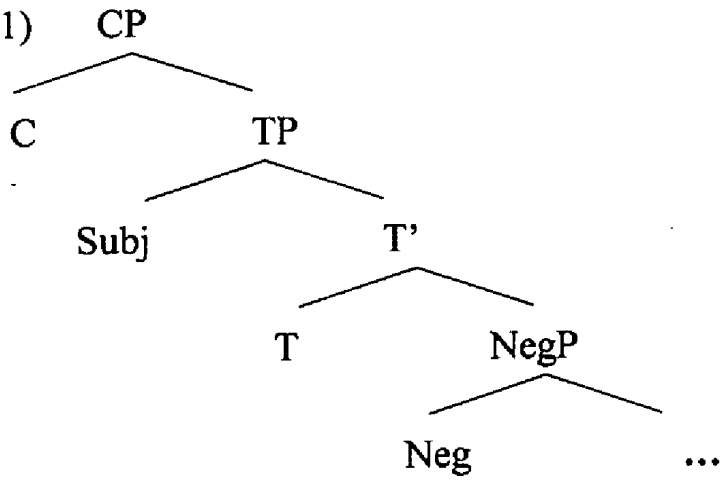
At this point we should pause and note that (3a) prevents reconstruction of *everyone* to the lower θ-position in (9a) as well. But then how can we obtain the reading where negation takes wide scope in

sentences like (9a) or (4a) in the first place?[2] Also, note the following examples, which show the reading where negation takes scope over a subject universal quantifier is possible even when the subject has undergone raising so long as it its surface position in the same clause as the negation:

(10) a. Everyone isn't believed to have left.
b. Everyone doesn't seem to have left.

Following work by Pollock (1989) and Chomsky (1991), I assume the hierarchy of functional categories above the "lexical shell" as indicated in (11).

(11)



Keeping to the basic assumption that scope relations are determined by command relations at LF, there seem to be several possible ways to account for the fact that the raised subject can take narrow scope with respect to negation in a structure like (11), even without "reconstructing" it to a position lower than NegP.

One possibility is that the negative operator undergoes QR to a position c-commanding *everyone* prior to LF. However, this is counter to the minimalist spirit of the H/K theory of scope, which attempts to eliminate morphologically unmotivated operations. A more attractive possibility seems to be to appeal to the fact that negation appears morphologically affixed to T in many languages, including English. In

[2] Incidentally, the same question arises for Chomsky (1995) and Lasnik (1999), who argue that A-chain reconstruction is in general impossible.

fact, something along these lines might be what Hornstein had in mind when he made the proposal about reduced versus unreduced *not* discussed above. However, since Hornstein's generalization does not seem to hold, I will assume that negative head *not* always adjoins to T and that it optionally undergoes "phonological reduction" in finite clauses.[3] If so, the relevant part of the structure of (9a) after adjunction of Neg to T will be as in (12) (here, I tentatively assume that the adjunction is to the right).

(12) $[_{CP}\ [_{C}$ that/$\varnothing]\ [_{TP}$ everyone $[_{T}\ [_{T}$ did$]\ [_{Neg}$ not$]]\ [_{NegP}\ [_{Neg}$ *not*$]$ ...$]]]$

Assuming the structure in (12), can we account for the fact that negation may take scope over the subject in, say, (9a)? That depends on how the relation "c-command" is stated, at least for the purposes of scope. If it is defined as something more like m-command, then the facts would indeed follow given that Neg presumably m-commands the subject quantifier in the specifier of TP after adjoining to T. Also, since the subject presumably m-commands Neg in (12) (i.e., the relation is symmetric), we can easily predict the reading where the subject takes wide scope, regardless of whether or not reconstruction is possible with this sort of head movement.

There are some potential concerns about such an analysis, however.[4] Within the minimalist program, it is highly desirable to derive syntactic relations from deeper properties of the system, rather than merely stipulate them. For example, Epstein (1999) has attempted fairly successfully to derive c-command from the computational procedure itself, in particular recursive application of Merge. It is not clear if similar attempts to derive m-command would be equally as successful. Another

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[3] This might lead one to wonder why there should be a finite/non-finite asymmetry with respect to the possibility of *n't*. However, if non-finite T is phonologically null, as I suggest below, a reasonable explanation for the asymmetry might be that the reduction in question is a type of phonological cliticization requiring the X^0 that hosts the clitic to be overt.

[4] One obvious concern has to do with NPI licensing. If the head of NegP m-commands the subject position, and m-command is relevant for NPI licensing, it is not clear why subject NPIs are impossible, as in (i).

(i) *Anyone didn't leave.

On other hand, NPI licensing might involve derivational processes that go beyond mere "command" by a negative element.

potential reason for preferring c-command to m-command stems from Kayne's (1994) Linear Correspondence Axiom (LCA), according to which asymmetric c-command relations map to asymmetric precedence relations at PF. The specifier of a phrase asymmetrically c-commands both the head and the complement, explaining why it precedes both at PF. But under m-command, the relation is symmetric, which is not in accord with Kayne's LCA. On the other hand, the LCA is not unproblematic, and it may turn out that principles other than (c-)command are involved in determining the order of specifier, head and complement within standard X-bar structures.[5]

There is at least one other possibility that should be considered, namely, that the configuration in which negation is allowed to take scope over the subject is not created by Neg-to-T movement alone, but rather by subsequent movement of T, which carries an adjoined Neg along with it, to C, as schematized in (13).[6]

(13) $[_{CP}\ [_{C}\ [_{C}\ \varnothing]\ [_{T}\ [_{T}$ is/does$]\ [_{Neg}$ not$]]]\ [_{TP}$ everyone
$[_{T}\ [_{T}$ is/does$]\ [_{Neg}$ not$]]\ [_{NegP}\ [_{Neg}$ not$]$ ...$]]]$

If we assume the structure in (13), there does not appear to be any serious problem in allowing negation to take scope over the subject, even under the stricter notion of c-command as opposed to m-command.[7] I will not attempt to decide here between these alternative analyses, Neg-to-T versus Neg-to-T followed by T-to-C, leaving the question up to further research. Clearly, neither approach is without problems, but I assume (perhaps it is better to say *hope*) that some such analysis will turn out to

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[5] Also, even if the LCA turns out to be correct, it is not logically impossible that m-command is relevant for determining scope relations at LF whereas c-command is used for determining precedence relations at PF, although to make such a claim would carry a heavy burden of proof.

[6] That is, the T-to-C movement that is commonly thought to take place only in matrix questions in English would be generalized to all clause types. However, note that the movement is apparently not overt, which may be a problem on the assumption, made below, that that there is no covert transformational cycle. Perhaps T moves to C followed by movement of the subject to CP-Spec in declaratives. But then we are back to requiring m-command, unless the movement of the subject from TP-Spec to CP-Spec in such cases constitutes A'-movement, in which case reconstruction of the subject to Spec-TP might be possible (as this would then be the highest position in the A-chain).

be successful. Anyway, that negation can take scope over a local subject, in a way that does not depend on reconstruction of the subject, seems to be a matter of empirical fact and for the most part independent of the specific proposal I wish to make in this paper.

Let us now turn to consider cases where a universal quantifier appears as the subject of an infinitival with negation, such as the examples in (6), which are repeated with a bit more structural detail in (14).

(14) a. John would [*John v* [prefer [for [everyone not to [*everyone* leave]]]]]
b. John T [*John v* [wants (very much) [for [everyone not to [*everyone* leave]]]]]

Recall that I am assuming (contra Hornstein 1999) that these sentences allow, at least for many speakers, the reading where negation takes scope over the universal. Also note that reconstruction of *everyone* to its θ-position in (14) will be barred by (3a). Presumably, then, whatever makes it possible for negation to have scope over the subject in examples like (4a)/(5a) also underlies the availability of such a reading in (14). Consider the possible structures illustrating the result of head movement in (15); (15a) shows adjunction of Neg to T, whereas (15b) illustrates the structure if it turns out that T further raises to C.[8]

(15) a. John T [*John v* [prefers [$_{CP}$ for [$_{TP}$ everyone [$_{T}$ [$_{T}$ ∅] [$_{Neg}$ not]] [$_{NegP}$ *[$_{Neg}$ not]* [to [*everyone* leave]]]]]]]
b. John T [*John v* [prefers [$_{CP}$ [$_{C}$ [$_{C}$ for] [$_{T}$ [$_{T}$ ∅] [$_{Neg}$ not]]] [$_{TP}$ everyone *[$_{T}$ [$_{T}$ ∅] [$_{Neg}$ not]]* [$_{NegP}$ *[$_{Neg}$ not]* [to [*everyone* leave]]]]]]]

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[7] This assumes that X^0 adjunction structures are "transparent" for c-command (see Chomsky 1995 for related discussion). Also, note that to get the reading where the subject takes wide scope, we would have to allow head-reconstruction of Neg on this analysis.

[8] I assume that *to* is not the head of an infinitival TP, but rather is some functional projection lower than T, as argued in Martin 1996. Although it is not crucial for the present analysis, the assumption that the head of a non-finite TP is phonologically empty allows us to maintain a uniform right-adjunction analysis of Neg-to-T and perhaps also to explain why phonological reduction of *not* to *n't* is impossible in infinitival clauses, as suggested in footnote 3 above.

Again assuming one of the analyses suggested above (or some similar such analysis) to be correct, the scope possibilities in (6) can be explained in the same way as (4a)/(5a).

The examples in (7), in which the embedded negation can apparently take scope over the ECM subject, raise more interesting questions. Consider first a structure like (16) for (7a), which assumes that the ECM subject both checks an EPP feature in the specifier of the embedded TP and further undergoes movement to the specifier of the matrix *v*P, giving rise to an A-chain with three copies.

(16) [$_{CP}$ C [$_{TP}$ John T [$_{vP}$ everyone [*John* *v* [$_{VP}$ believes [$_{TP}$ *everyone* not to have [*everyone* left]]]]]]

Just as in the other examples with raised universal quantifiers considered so far, reconstruction to the initial θ-position in (16) is prohibited by (3a). It also seems that, in this case, reconstruction to the intermediate TP-Spec position should be barred by (3b). Yet if only the highest copy of *everyone* in (16) is "available" for scope interpretation at LF, we are faced with a serious problem. Based on morphological and syntactic evidence in many languages, it seems fairly reasonable to conclude that negation raises to T, or perhaps even as far as C, in both finite and non-finite clauses. However, there does not appear to be any independent motivation for the claim that the embedded negation in (16) can move to a position high enough to m-command (or on the stricter interpretation, c-command) the copy of *everyone* in the matrix *v*P-Spec. Thus it is predicted that examples like (7) behave identically to (4c)/(5b) with respect to the relevant scope interactions, given that *everyone* moves out of the clause containing the negation, and that reconstruction is impossible, in both types of sentences.

So, how can we obtain the (marginal) reading where negation scopes over *everyone* in (7)? To answer this question, we need to first consider the analysis of ECM in more detail. I will argue, following Lasnik (1999), that the solution rests on the assumption that (overt) movement of accusative-valued goals to *v*P-Spec optionally takes place in English.

In the recent minimalist literature, there have basically been two major approaches to probe-goal relations where probe = *v*. One approach claims that the goal moves overtly to *v*P-Spec (Lasnik 1995, Koizumi 1995), whereas on the other approach (Chomsky 1995, 2000, 2001, *etc.*), *v* undergoes agreement with the goal, but there is no (overt) movement. If we assume the first approach (the *overt object shift* theory), I do not see how (7) can be distinguished from (4c)/(5b) with respect to possibility of negation taking scope over the universal. On other hand, if overt movement is able to "stop" at the embedded TP-Spec (EPP) position, then a principled distinction can be made.

If overt movement in (7) is only to the embedded TP-Spec, then the relation between *v* and the ECM subject is in some sense *covert*. On one approach to the overt/covert distinction (e.g., Chomsky 1993), establishing an "agreement" relation between a probe (T/*v*) and a goal (DP) requires movement of the goal to the checking domain (= specifier) of the probe. This movement may take place either before or after spell-out (depending on factors such as feature strength and so on), hence may either be overt or covert. In more recent work, however, Chomsky (2000, 2001, 2004) has argued for a model in which there is only one syntactic cycle, with no significant covert component. In this model, what used to be thought of as covert movement is treated as *just* agreement, which is no longer taken to involve checking domains but merely "command plus locality." Movement (always overt on this view) of the goal to the specifier of the probe takes place only if the probe has, in addition to unvalued ϕ-features, an EPP feature.

Suppose T has an EPP feature but *v* does not. Then the representation of (7a) will look like (17) rather than (16).[9]

(17) [$_{CP}$ C [$_{TP}$ John T [$_{vP}$ *John* *v* [$_{VP}$ believes [$_{TP}$ *everyone* not to have [*everyone* left]]]]

Now we are in a better position to account for the scope facts in (7), in particular the reading where negation has scope over *everyone*.

[9] Note that it is assumed that *v* agrees with *everyone* but does not require a copy (an occurrence) of *everyone* in its specifier due to the lack of an EPP feature. Also, note that if the analysis here is on the right track, it follows that Agree alone does not establish chains.

Reconstruction of *everyone* to the lowest position in (17) is still impossible due to (3a). But, unlike the representation in (16), we can now interpret the universal quantifier in the specifier of the embedded TP, since doing so no longer involves reconstruction to an intermediate position, this being the maximal (highest) position in the chain in (17). As long as negation moves to some position within the infinitival clause from which it takes scope over the subject in TP-Spec, the desired reading can be obtained.

We have been considering two possibilities with regard to the nature of the position to which negation moves, T and C. If raising/ECM infinitival complements are TPs, as is usually assumed, this may constitute an argument for the first option, namely, that movement to T suffices to yield the wide-scope negation reading. However, Ormazabal (1995) (also Martin 1999) argues that propositional clauses are invariably CPs, regardless of whether they are finite or non-finite, in which case the option of Neg-to-C (more precisely, *Neg* gets "carried along" under T-to-C movement) may still be viable. Again, I will not attempt to settle this matter here, and merely provide structures illustrating both possibilities below:

(18) a. John T [$_{vP}$ *John v* [believes [$_{TP}$ everyone [$_{T}$ [$_{T}$ ∅] [$_{Neg}$ not]] [$_{NegP}$ *[$_{Neg}$ not]* [to have [*everyone* left]]]]]]

b. John T [$_{vP}$ *John v* [believes [$_{CP}$ [$_{C}$ [$_{C}$ ∅] [$_{T}$ [$_{T}$ ∅] [$_{Neg}$ not]]] [$_{TP}$ everyone *[$_{T}$ [$_{T}$ ∅] [$_{Neg}$ not]]* [$_{NegP}$ *[$_{Neg}$ not]* [to have [*everyone* left]]]]]]

The above analysis is based on the assumption that objects need not raise to *v*P-Spec. However, there was a reason for assuming overt object shift, hence a structure like (16), to begin with. Under the H/K analysis of the ambiguity in (1), it is crucial that a copy of the object quantifier be in *v*P-Spec, since this is presumably the only position from which the object can take scope over the subject. Assuming (non-trivial) chains arise only by movement, not by Agree alone, this would appear to be a contradiction. Notice also that it will not suffice to claim that standard objects move to *v*P-Spec whereas "exceptional" objects (i.e., ECM subjects) do not, since the same situation arises in ECM contexts as well. (19a) allows a reading

where *everyone* takes scope over *someone*, which entails that it can have a structure like (19b), under the assumptions of the H/K theory of scope.

(19) a. Someone believes everyone to have left.
b. [$_{CP}$ C [$_{TP}$ someone T [$_{vP}$ everyone [*someone v* [$_{VP}$ believes [$_{TP}$ *everyone* to have [*everyone* left]]]]]

Lasnik (1999) suggests a way out of this seeming paradox: object shift (i.e., movement of the object to *v*P-Spec) is optional in English. Accepting Chomsky's argument against A-movement reconstruction, he concludes that the possibility of wide-scope negation in (7) indicates that the universal quantifier does not undergo movement to the matrix but remains in the embedded infinitival clause. In support of this, he considers examples like (20), where the optional nature of object shift is arguably reflected in the different possible word orders.

(20) a. John made out everyone not to have left.
b. John made everyone out not to have left.

Interestingly, it seems that negation can take scope over *everyone* in (20a) but not in (20b). This contrast can easily be accounted for assuming that the object has moved overtly to the matrix clause in (20b) but remains in the embedded clause in (20a), as the surface word order suggests. Setting aside some details, the structures for (20) are roughly as in (21).

(21) a. John made out [$_{TP}$ everyone not to have [*everyone* left]]
b. John made everyone out [$_{TP}$ *everyone* not to have [*everyone* left]]

Further confirmation is provided by the scope possibilities in (22).

(22) Someone believes everyone not to have left.

(22) allows the reading where negation takes scope over *everyone*, just as in (7), but on this reading *everyone* must also have scope under *someone*. This fact can easily be made to follow from the H/K theory of scope. In order for *everyone* to take scope over *someone*, it must raise to the matrix *v*P-Spec, whereas in order for it to have narrow scope with respect to

negation it must remain in the embedded TP.

Perhaps the main reason that Lasnik claims that object shift is optional, as opposed to simply saying that doesn't take place at all, is to reconcile the scope facts in (7) with a range of other facts suggesting that ECM subjects move to the higher clause (and even that standard objects raise out of VP). Although I will not go into the details here (see, for example, Lasnik and Saito 1991, Lasnik 1995, 1999, and Postal 1974 for discussion), the basis of the argument, at least for ECM, is the observation that subject of the embedded infinitival can bind anaphors and license NPIs contained in the matrix clause, as the following examples illustrate:

(23) a. The DA proved the defendants to be guilty during each other's trials.
b. The DA proved no one to be guilty during any of the trials.

The grammaticality of these examples shows that the ECM subjects, *the defendants* or *no one* in (23), are located in the matrix clause. However, Lasnik (1999) concedes that, to explain these facts, we do not have to conclude that movement of the ECM subject to matrix clause is obligatory, only that it is possible. On other hand, Lasnik discusses one type of argument for object shift of ECM subjects that suggests it is obligatory. Consider:

(24) John believes her to be a genius even more fervently than Mary does.

(24) can only be interpreted as a Condition C violation on the reading where *her* refers to *Mary*. But if ECM subjects have the option of remaining in the embedded TP, then (24) is predicted to be allowed on the relevant reading. Furthermore, recall Chomsky's Condition B argument against A-chain reconstruction in (2), a simplified version of which I repeat below.

(25) a. John believes him to be intelligent.
b. [$_{CP}$ C [$_{TP}$ John T [$_{vP}$ him [*John v* [believes [$_{TP}$ *him* to be [$_{AP}$ *him* intelligent]]]]]]
c. [$_{CP}$ C [$_{TP}$ John T [$_{vP}$ *John v* [believes [$_{TP}$ him to be [$_{AP}$ *him* intelligent]]]]]]

If the only representation available for (25a) is (25b), and reconstruction to both of the lower positions in the chain is prohibited by (3) as Hornstein argues, then the governing category for the pronoun, only the highest copy of which can be evaluated, will be the matrix TP. Hence coreference with *John* is correctly predicted to be impossible. On the other hand, if the representation in (25c), where the pronoun has not raised to the matrix *v*P-Spec, is possible, then the governing category will be the embedded TP, in which case coreference is incorrectly predicted to be possible.

Again, Lasnik (1999) suggests a solution: object shift is optional for full DPs but it is obligatory for pronouns. Although this may sound like a stipulation, it is in fact the common descriptive generalization in languages that clearly exhibit object shift and can even be witnessed in English verb-particle constructions, including the *make out* constructions discussed above (see in particular Johnson 1991):

(26) a. Mary made John out to be a genius.
b. Mary made out John to be a genius.
c. Mary made him out to be a genius.
d. *Mary made out him to be a genius.

The ungrammaticality of (26d) provides direct evidence that an ECM subject pronoun, unlike a full DP as in (26b), must undergo movement, and cannot remain in the embedded clause. If object shift is obligatory for pronouns, then it follows immediately that the Condition C and Condition B effects in (24) and (25) cannot be avoided.

In sum, Lasnik's proposed reconciliation of the scope facts in (7) and the binding-theoretic facts in (23) in terms of optional object shift can, I think, said to be successful. At least there does not appear to be any contradictory evidence suggesting, on one hand, that object shift must take place and, on the other, that it must not take place, at least not in the very same sentence. Although I adopt the suggestion that object shift is optional (although it may be obligatory in specific cases, such as when the object/ECM subject is a pronoun, for example), my proposal is very different from Lasnik's in that I argue that reconstruction is generally possible with A-movement, and account for the scope limitations and

binding facts in a way that is compatible with the H/K theory of scope.

Next, I would like to consider the so-called phenomenon of Quantifier Lowering (QL), which is sometimes taken as evidence for scope reconstruction with A-movement (Hornstein 1995). Although Chomsky (1995) and Lasnik (1999) both argue that QL is independent of scope reconstruction, I will show that there are a wide range of facts that can be explained under the current analysis but remain mysterious under the suggested alternatives. Consider first a sentence like (27).

(27) A physicist seems to have criticized the theory.

(27) is usually said to be ambiguous, its interpretation depending on whether *someone* takes scope in the matrix clause or in the embedded clause (see May 1977, 1985). The intuition, as I see it, is that (27) can be used either to assert the existence of some physicist or another who seems to have criticized the theory, the matrix-scope reading of the existential, or simply to make the claim that it seems a physicist criticized the theory, the so-called "lowered" or embedded-scope reading. If the two readings are real and result from differences in the scope of *someone*, (27) constitutes a potentially very strong argument for reconstruction in A-chains.

Chomsky (1995, p. 327) appears to accept the standard claim about the ambiguity of sentences like (27) but suggests, along the lines of May's (1977) original proposal, that the reading where the QP takes embedded scope may be derived by lowering the QP to the embedded TP, a movement operation, as opposed to reconstruction, which he takes to be a very different sort of process. If, as Chomsky suggests, the lowering operation in question adjoins QP to the embedded TP, this would presumably be low enough to allow the so-called lowered reading in (27), but not so low as to allow the QP to take narrow scope with respect to negation in sentences like (4c)/(5b) or the parallel example in (28).

(28) Everyone seems not to have criticized the theory.

Although Chomsky's proposal can apparently account for the core empirical observations, at least with sentences like (27), it crucially relies

on a special operation that adjoins QPs to TP, which moreover must be allowed to apply upwards or downwards.[10] However, these consequences are problematic under the minimalist assumption that there is always a morphological "driving force" for movement, instantiated most recently in Chomsky's "probe-goal theory" (in which a morphologically defective probe, i.e., a category with unvalued ϕ-features, seeks out a matching goal in its c-command domain), or, for example, the proposal that there are no covert movement operations (Chomsky 2000, 2001).

It should be obvious that the observed QL scope facts can be easily explained in terms of A-chain reconstruction, given the conditions in (3). As argued extensively above, there is no reconstruction of the A-moved QP *everyone* in sentences like (28), not because there is no A-chain reconstruction but due to (3); (3b) prevents reconstruction to the intermediate position whereas (3a) prevents reconstruction to the θ-position. In (27), on the other hand, a more detailed representation of which is given in (29), although reconstruction of *a physicist* to the intermediate position is still blocked by (3b), reconstruction to the θ-position is allowed since it is an indefinite DP.

(29) a physicist seems [*a physicist* to have [*a physicist v* [criticized the theory]]]

Note also that the phenomenon of QL is not simply a matter of the relative scope of the A-moved QP and the matrix predicate, as (30) shows.

(30) A physicist seems to have criticized every theory.

In (30), we can witness a scope interaction between *a physicist* and *every theory*. But for *every theory* to take scope over *a physicist*, the latter must have the lowered (embedded scope) reading. That is, (30) can mean that it seems that every theory was criticized by some physicist or another, but not that, for every theory, there is some particular physicist who seems to

[10] Under Chomsky's analysis, as far as I understand it, (28) should allow a reading where *everyone* takes embedded scope, but not lower than negation (i.e., *seems* > *every* > *not*). Such a reading does not seem to be available, however. The descriptive generalization, which is supported by Lasnik (1999), is apparently that only indefinites can undergo QL. As I will discuss

have criticized it. Under the H/K theory of scope, to obtain the reading where the object takes wide, it must be the case that the subject is interpreted in its θ-position and the object in *v*P-Spec, as in the analysis of (1). To illustrate, a more detailed structure for (30) is given in (31).

(31) a physicist seems [*a physicist* to have [every theory [*a physicist v* [criticized *every theory*]]]]

Nothing prevents reconstruction of the indefinite *a physicist* to the lowest position in (31); in particular, (3a) is silent. Furthermore, *every theory* can undergo object shift (in fact, as I will discuss in greater detail below, it *must* do so since it is definite and hence cannot remain in the lexical shell according to (3a)), in which case it will be interpreted in the *v*P-Spec position. Since there is no other way to obtain the reading where the object takes scope over the subject under the H/K theory, it is easily predicted that *a physicist* also takes scope in the embedded clause on such a reading (i.e., only the lowered reading is allowed).[11]

Lasnik (1999), although agreeing with Chomsky's conclusion about the absence of reconstruction with A-movement, takes a very different approach to (27). Rather than arguing for an operation that literally lowers the quantifier to the embedded IP, he suggests that the "different interpretations" of (27) may not involve a scope ambiguity at all. In support of this, he presents a number of examples involving raised quantifiers that apparently do not support lowered readings:

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below, this generalization is predicted by the current theory, but I do not see how it can be made to follow from an adjunction (lowering) analysis.

11 Note that (30) also allows a "lowered reading" where someone takes scope over the object universal. It is not obvious how this reading can be obtained given the reconstruction possibilities and the structure in (31). To get the lowered reading, someone must be interpreted in the θ-position; the intermediate position is not an option given (3b). And the only possibility for the definite object is the vP-Spec position, given (3a). But it looks in (31) like the object should then necessarily take scope over the subject, if the outer Spec asymmetrically c-commands the inner Spec. There seem to be a couple of possible ways to deal with this problem. One possibility is that the ordering of specifiers can optionally be reversed (in other words, movement of the object can optionally be to the "outer" Spec or to the "inner" Spec; cf. Richards 1997). Another possibility is that the order of specifiers is fixed as in (31), but m-command (or some variant) is used to determine scope possibilities at LF. Note that on the latter view, but not on the former, a single LF representation would yield both of the relevant interpretations, assuming the two specifiers symmetrically m-command each other. The latter view also raises questions with respect to Kayne's LCA similar to those discussed above.

(32) a. No one is certain to solve the problem.
b. Every coin is 3% likely to land heads.

It seems that (32a) does not allow a reading on which the speaker asserts that it is certain that no one will solve the problem, only that there is not one particular person who is certain to do so. Similarly, (32b) is not a statement about the likelihood that every coin will land heads but rather an implausible one to the effect that for every coin tossed there is a mere 3% likelihood of it landing heads. Thus Lasnik concludes that QL is not a general phenomenon.

However, even if the sentences in (32) have representations like those in (33), their limited scope possibilities can be easily explained under the current proposal, assuming that reconstruction of the definite quantificational expressions *everyone* and *no one* is constrained by (3); in particular, reconstruction of these sorts of definite quantificational expressions to the lowest position will run afoul of (3a).

(33) a. no one is certain [*no one* to [*no one* win the race]]
b. every coin is 3% likely [*every coin* to [*every coin* land heads]]

The virtue of this approach is that we don't have to give up what is otherwise a very simple and straightforward explanation of the ambiguity of (27) in terms of scope reconstruction. Furthermore, the descriptive generalization that Lasnik paints, namely, that there is something special about the meaning of *indefinites* that makes them appear to have lowered readings in sentences like (27), is exactly what is predicted by a theory in which scope reconstruction in A-chains is allowed, but constrained by (3). Lasnik's suggestion, on the other hand, merely leaves us with an unanswered question: what is special about the meaning indefinites that gives rise to the interpretive facts in (27)?

It could be that what Lasnik has in mind is that indefinites can be interpreted as either specific or non-specific, and that this distinction is behind the possible interpretations of (27). The idea seems at first to be somewhat plausible, especially in light of examples like (34).

(34) Every man thinks it is likely that some woman will criticize his theory.

Although quantifiers can normally not take scope outside of their clause, (34) seems to, at least marginally, allow for a reading where the speaker has in mind some particular woman who is thought by every man to be likely to criticize his theory. However, note that it is not possible for (34) to have a reading where the specific woman the speaker has in mind varies for every man. In other words, insofar as specific indefinites can have this unusual sort of apparent wide scope reading (*unusual* in the sense that it is "wider" than standard theories of quantifier interactions would predict, *apparent* in that it may not really be a true scope phenomenon), when they do, they must crucially take "widest possible scope." Interestingly, examples involving A-movement do not seem to differ in this respect:

(35) Every man thinks some woman is likely to criticize his theory.

The sentence in (35) allows the same sort of reading where the speaker has in mind some particular woman and, again, on this interpretation the woman in question cannot be different for each man. It also allows an interpretation on which there is (potentially) a different woman critic for each man, hence by hypothesis the non-specific reading of *some woman.* Yet even on the latter interpretation, (35) exhibits the sort of ambiguity witnessed in (27). That is, (35) seems to have three relevant readings, whereas an analysis based on the specific/non-specific dichotomy alone would seem to predict only two. On the other hand, the facts follow immediately from a theory that explains the core ambiguity of (27) in terms of the scope reconstruction and treats specificity as an independent phenomenon.

Finally, I will consider some additional scope facts that seem to support the general approach argued for in this paper, especially the claim that definite quantifiers do not reconstruct to θ-positions. Recall the H/K approach to (1a), which I repeat in (36a) together with structures illustrating two possible derivations, one with object shift applies and one without.

(36) a. Someone loves everyone.
b. [$_{CP}$ C [$_{TP}$ someone [T [$_{vP}$ everyone [*someone* [*v* [$_{VP}$ loves *everyone*]]]]]]]
c. [CP C [TP someone [T [*v*P someone [*v* [VP loves everyone]]]]]]

Assume, following Hornstein (1998, 1999), that interface conditions require that at most one copy in an A-chain be present at LF, hence all others must be deleted. Furthermore, assume deletion of copies applies freely, unless some constraint is violated. In these terms, the process of "reconstruction," at least in A-chains, can be thought of as deletion of the highest copy (in other words, the copy that remains for C-I interpretation is one of the lower copies). According to (3b), however, if all the copies in a chain other than an intermediate copy are deleted, the single copy remaining at LF would be invisible, presumably a violation of some constraint banning "non-recoverable" deletion of arguments. Thus reconstruction effects in A-chains will be limited to instances where it is the *lowest* copy that remains. Given that the lowest copy, at least in A-chains, is always a θ-position, reconstruction possibilities are further constrained by (3a), which states that definite arguments cannot "remain" in such a position at LF.

Now consider the reconstruction possibilities in (36b-c). (37) shows the four logically possible representations, where all but one copy in each of the two chains has been deleted (indicated below by "double strike-out"), for the derivation with object shift in (36b).

(37) a. [$_{CP}$ C [$_{TP}$ someone [T [$_{vP}$ everyone [~~*someone*~~ [*v* [$_{VP}$ loves ~~*everyone*~~]]]]]]]
b. [$_{CP}$ C [$_{TP}$ ~~someone~~ [T [$_{vP}$ everyone [*someone* [*v* [$_{VP}$ loves ~~*everyone*~~]]]]]]]
c. *[$_{CP}$ C [$_{TP}$ someone [T [$_{vP}$ ~~*everyone*~~ [~~*someone*~~ [*v* [$_{VP}$ loves everyone]]]]]]]
d. *[$_{CP}$ C [$_{TP}$ ~~someone~~ [T [$_{vP}$ ~~*everyone*~~ [*someone* [*v* [$_{VP}$ loves everyone]]]]]]]

Note that (37c) and (37d), although they satisfy the condition that only one copy remain, are illicit due to (3a). However, we can capture the ambiguity of the sentence since the representation in (37a) gives rise to the reading where the subject takes wide scope and presumably (37b) allows the reading where the object takes scope over the subject. The representations for the derivation in (36c) are given in (38).

(38) a. *[$_{CP}$ C [$_{TP}$ someone [T [$_{vP}$ ~~someone~~ [v [$_{VP}$ loves everyone]]]]]]
b. *[$_{CP}$ C [$_{TP}$ ~~someone~~ [T [$_{vP}$ *someone* [v [$_{VP}$ loves everyone]]]]]]

In this case there are just two possible LF structures, both of which are illegitimate due to (3a). In other words, if the object is definite, a derivation without object shift cannot lead to an interpretable representation. This does not give rise to any serious empirical problems, so long as object shift is always an option.

Now note that the current theory makes a clear prediction: Wide scope of the object over the subject is possible only when the subject can reconstruct. But reconstruction of definite arguments is, as we have seen, impossible. Therefore the object should not be able to take scope over a definite subject. Let's see if we can test the prediction. A relevant example is (39a), which can have the derivations in (39b), with object shift, or (39c) where the object remains in the VP.

(39) a. Everyone loves someone.
b. [$_{CP}$ C [$_{TP}$ everyone [T [$_{vP}$ someone [*everyone* [v [$_{VP}$ loves *someone*]]]]]]
c. [$_{CP}$ C [$_{TP}$ everyone [T [$_{vP}$ *everyone* [v [$_{VP}$ loves someone]]]]]]

Consider again the logic of the situation. (39b) allows, in principle the representations in (40), and (39c) those in (41).

(40) a. [$_{CP}$ C [$_{TP}$ everyone [T [$_{vP}$ someone [~~everyone~~ [v [$_{VP}$ loves ~~someone~~]]]]]]
b. [$_{CP}$ C [$_{TP}$ everyone [T [$_{vP}$ ~~someone~~ [~~everyone~~ [v [$_{VP}$ loves *someone*]]]]]]
c. *[$_{CP}$ C [$_{TP}$ ~~everyone~~ [T [$_{vP}$ someone [everyone [v [$_{VP}$ loves ~~someone~~]]]]]]
d. *[$_{CP}$ C [$_{TP}$ ~~everyone~~ [T [$_{vP}$ ~~someone~~ [everyone [v [$_{VP}$ loves *someone*]]]]]]

(41) a. [$_{CP}$ C [$_{TP}$ everyone [T [$_{vP}$ ~~everyone~~ [v [$_{VP}$ loves someone]]]]]]
b. *[$_{CP}$ C [$_{TP}$ ~~everyone~~ [T [$_{vP}$ *everyone* [v [$_{VP}$ loves someone]]]]]]

Out of the all of the possible representation in (40)-(41), those in (40c-d) and (41b) are blocked by (3a) since they involve reconstruction of the definite subject to its θ-position. If we consider only the legitimate representations in (40)-(41), it can easily be verified that all of them give rise to a reading where the subject takes scope over the object (this is true regardless of whether it is assumed that scope is determined by

c-command or m-command). That is, no representation is available where the object can take scope over the definite subject. Is the empirical prediction borne out?

In fact, sentences like (39a) are usually set aside in most discussions of scope ambiguities. The reasoning is generally that if you want to see whether an object quantifier can take scope over the subject, you shouldn't test using examples like (39a) since even if such a reading appears to be available, it is conceivable that this is due to the possibility of a specific interpretation of the indefinite, hence not a matter of scope *per se*. However, this is perhaps being a bit too cautious. As in the discussion of QL above, I think it is possible to control for specific readings of indefinites. In the context of a question like (42), for example, an interpretation of the indefinite as specific would not be felicitous, as far as I can see.

(42) How likely is it that everyone loves someone?

At the same time, (42) cannot be a question asking about the likelihood of there existing someone who is loved by everyone (i.e., the narrow scope reading of the definite subject QP is impossible).

Also, note (43)

(43) Every student criticized many professors.

Using an object quantifier like *many professors* allows us to distinguish more readily, I believe, a purely quantificational reading that would presumably be incompatible with the notion specificity. Limiting ourselves to this interpretation of *many professors*, it seems clear that the subject must have wide scope in (43); that is, the number of professors that every student criticized is many, but not the number of professors who were criticized by every student is many. Again, these facts follow in a straightforward way from the current analysis. In particular, the data discussed here provide further support for (3a), which predicts that the reconstruction possibilities for definite arguments will be more limited than for indefinites.

To conclude, in this paper I have considered some of the main arguments for and against reconstruction in A-chains. Whereas the argument for reconstruction based on the H/K theory of scope is quite convincing, the evidence that has been presented against A-chain reconstruction (and by extension, it could be argued, against A-chains themselves; see Lasnik 1999) can all be accounted for in other, in some cases more adequate, ways. In particular, I have argued that the absence of certain otherwise predicted scope readings in sentences involving definite quantifiers can be accounted for in much the same way that Hornstein (1999) deals with the lack of reconstruction effects with pronouns, namely, by assuming that definite arguments must be interpreted outside of the lexical (θ) domain at LF and that intermediate positions in a chain are not potential reconstruction sites due to the fact that they are not visible objects in the system. Needless to say, many questions remain unanswered and must await future research.

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